



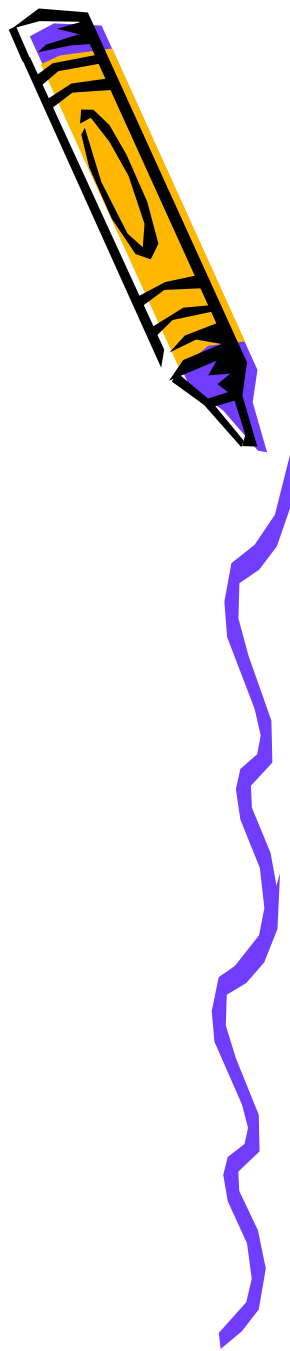
Parent Forum:
Bridges in Mathematics
January 24, 2011

Kindergarten Through Fifth Grade

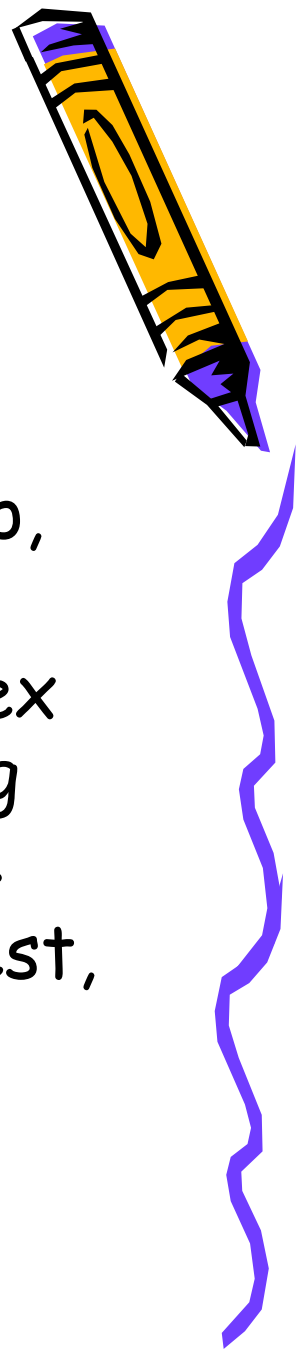


Agenda

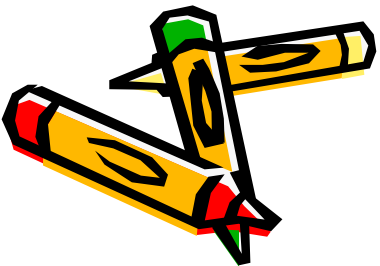
- Key Ideas of Bridges
- How You Can Help at Home
- Bridges Lessons
- Questions and Answers



Bridges in Mathematics

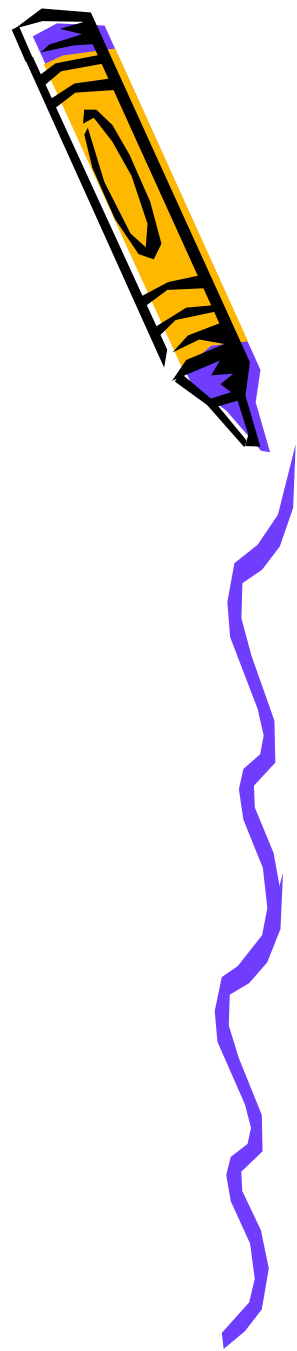


- A Bridges classroom features a combination of whole-group, small-group, and independent activities.
- Lessons incorporate increasingly complex visual models - seeing, touching, working with manipulatives, and sketching ideas.
- Students are encouraged to explore, test, and justify their reasoning.



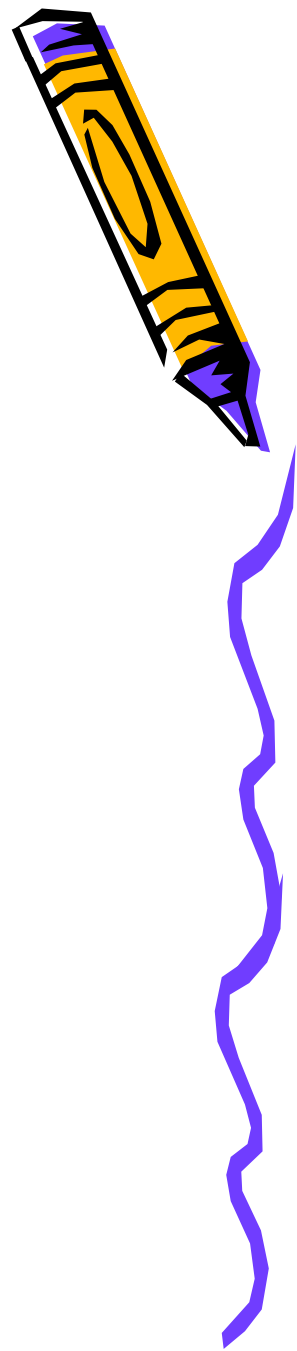
Key Ideas of Bridges

- Inquiry Based
- Visual Models
- Mathematical Discourse
- Spiraling Concepts



Key Ideas of Bridges

- Inquiry Based
 - What is inquiry based instruction?
 - Discovering Algorithms



Bridges In Mathematics



Conceptual Understanding

Thinking about the how and why math works is essential in higher mathematics such as Algebra, Geometry, Calculus, applied mathematics and more.

Bridges Math Program

Bridges connects these two ways of thinking. It acts like a “bridge” so to speak.

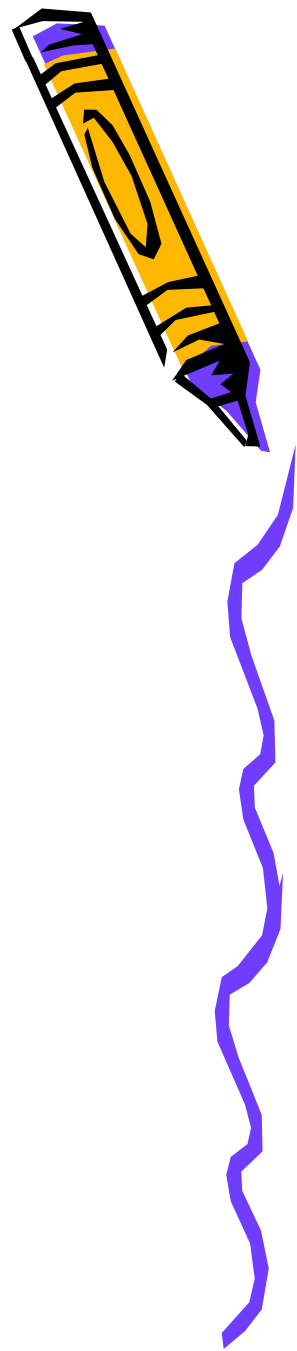
Algorithm

+ - \times \div
“Plug and Chug”
mathematics



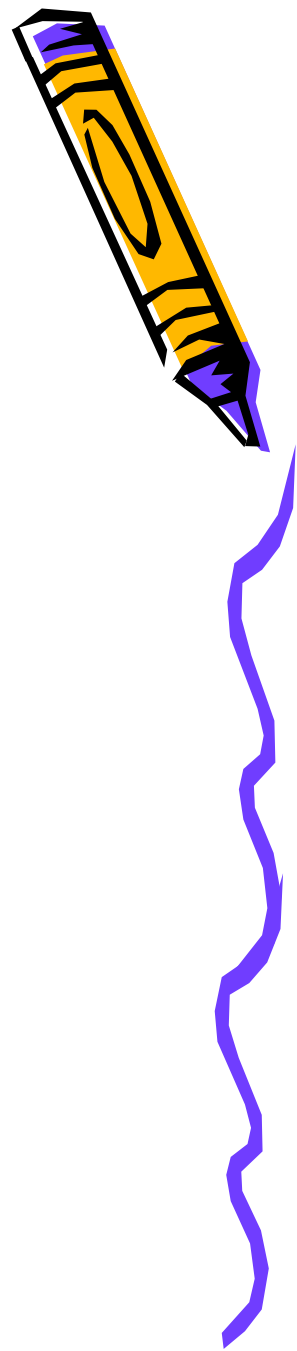
Key Ideas of Bridges

- Inquiry Based
 - What is inquiry based instruction?
 - Discovering Algorithms
 - Preparing Students for the Future

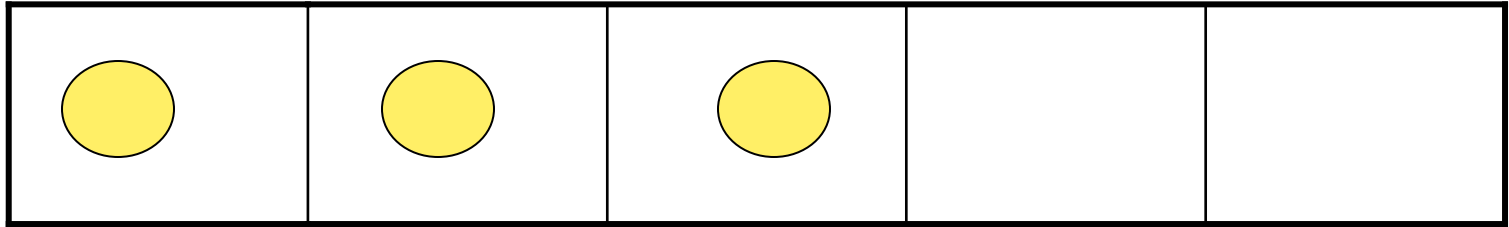


Key Ideas of Bridges

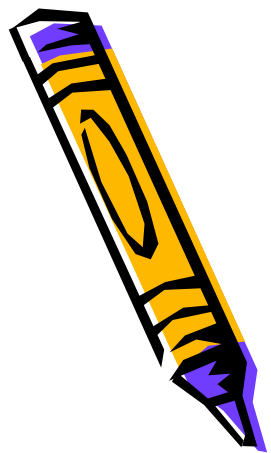
- Visual Models
 - Non linguistic
 - Examples
 - 5 Frame
 - 10 Frame
 - Hundred Chart
 - First Grade Number Corner
 - Number Lines
 - Multiplication Arrays



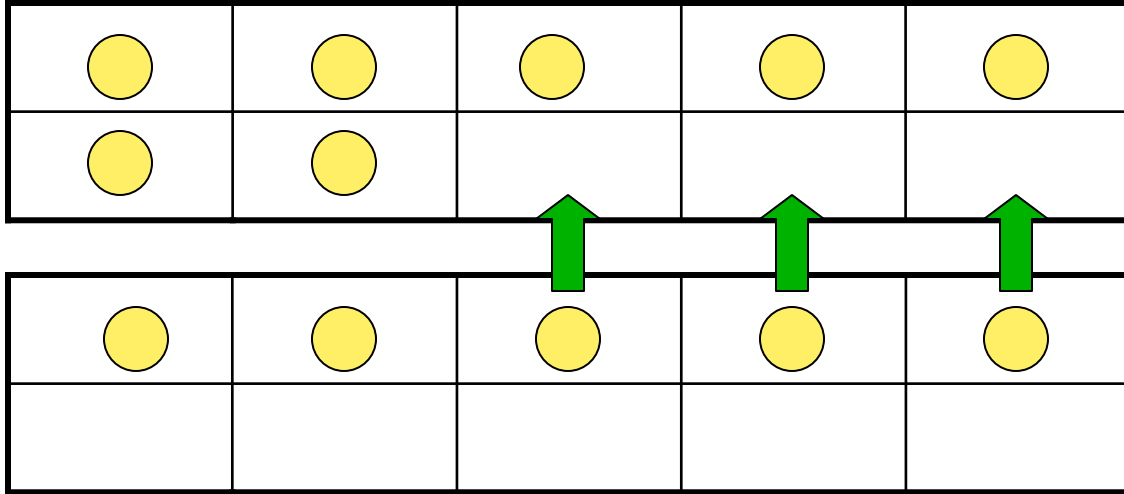
5 Frame



- Represents 3
- Represents more than half
- 3 filled + 2 empty = 5 altogether
- $5 - 3 = 2$



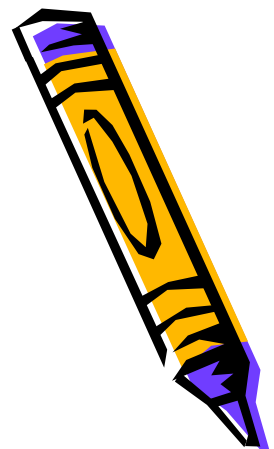
10 Frame



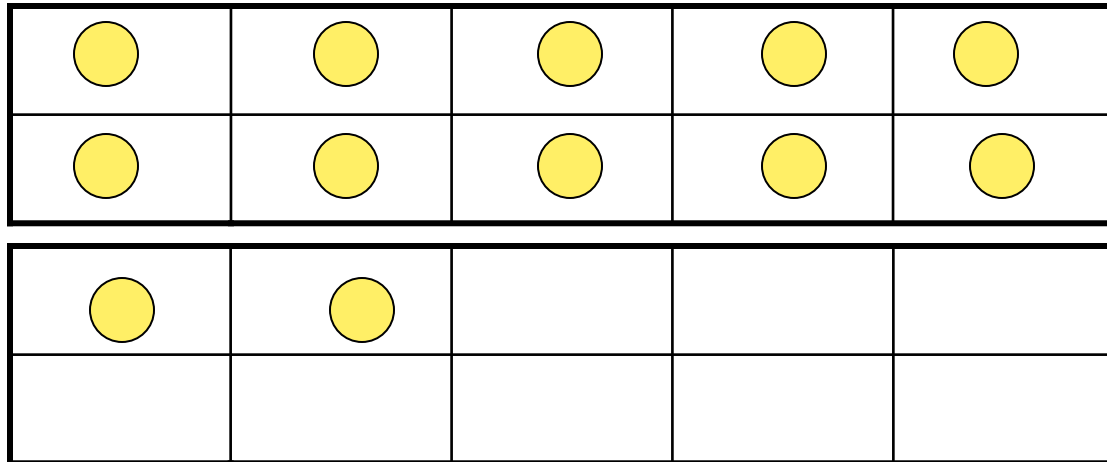
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5



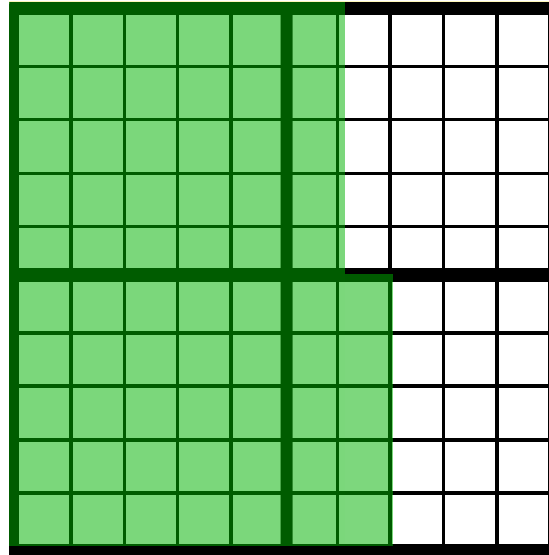
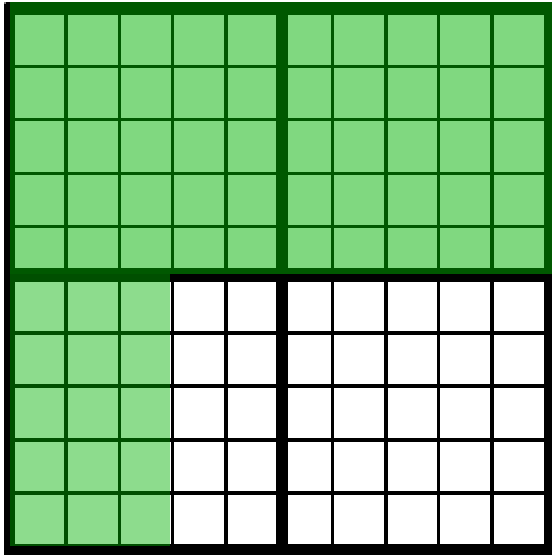
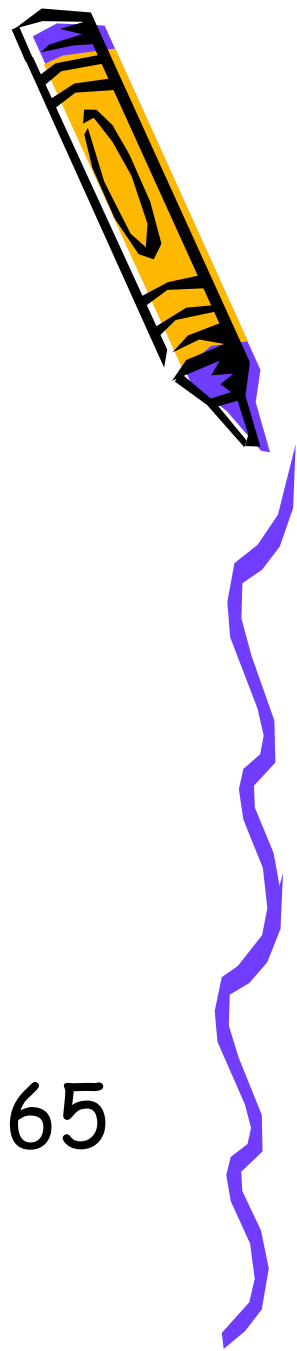
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12



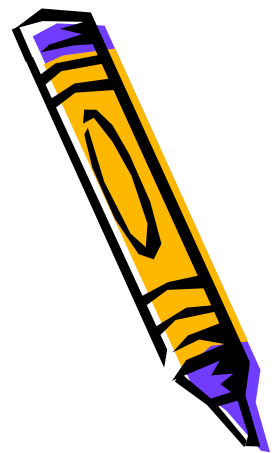
Hundreds Grid



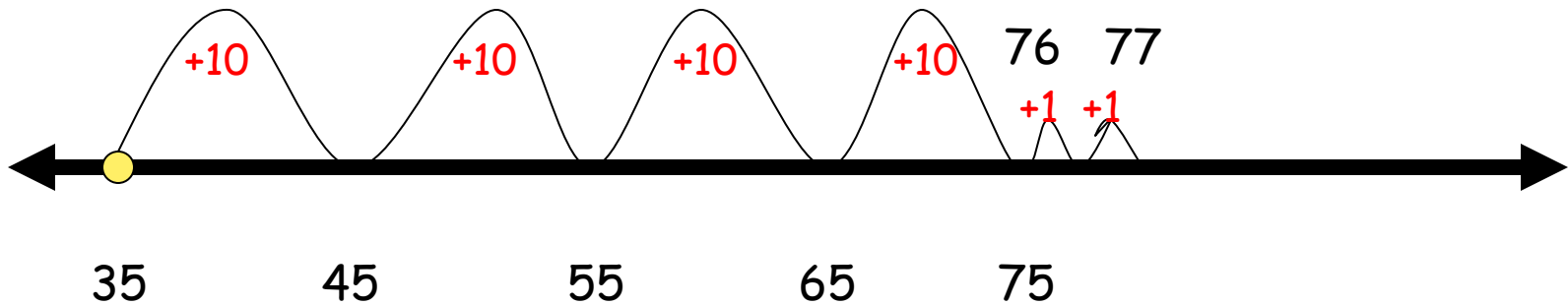
Different ways to represent 65



Number Line



77 is how much larger than 35?



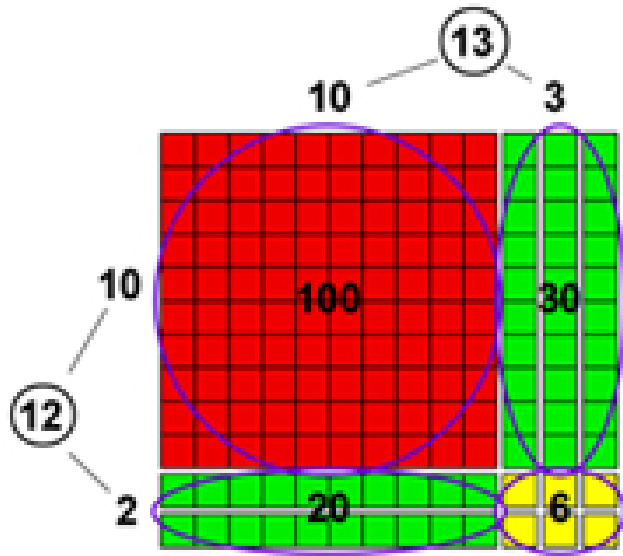
42



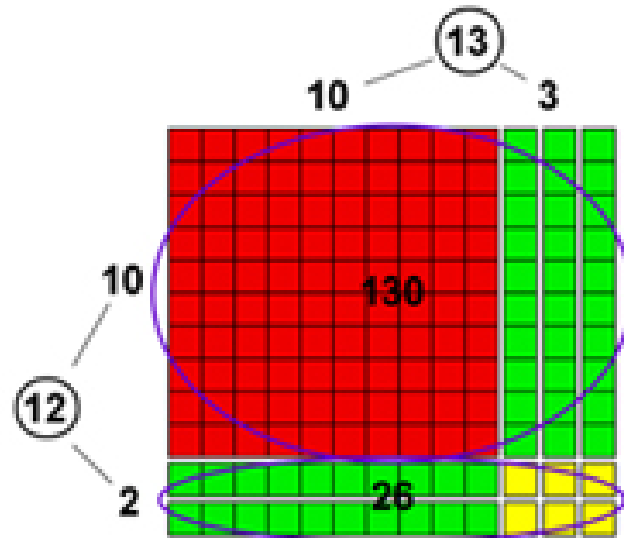
Multiplication Arrays



- Two visual models for 13×12



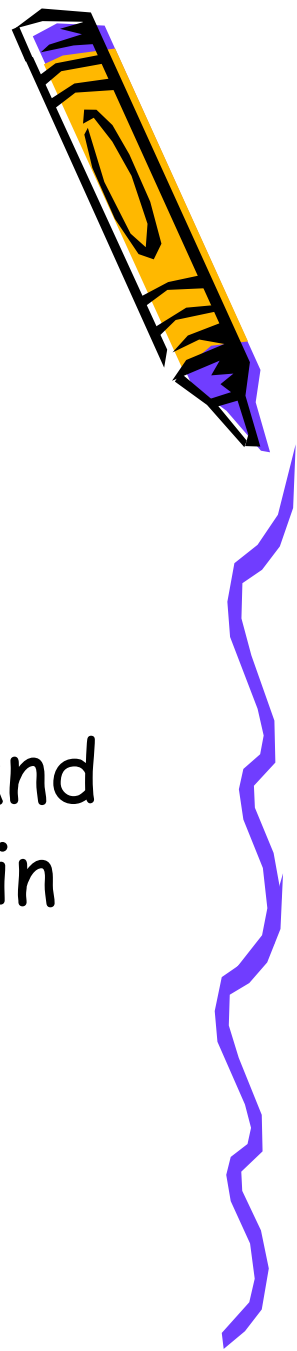
$$\begin{array}{r} 100 \\ 30 \\ 20 \\ + 6 \\ \hline 156 \end{array}$$



$$\begin{array}{r} 13 \\ \times 12 \\ \hline 26 \\ + 130 \\ \hline 156 \end{array}$$



Mathematical Discourse

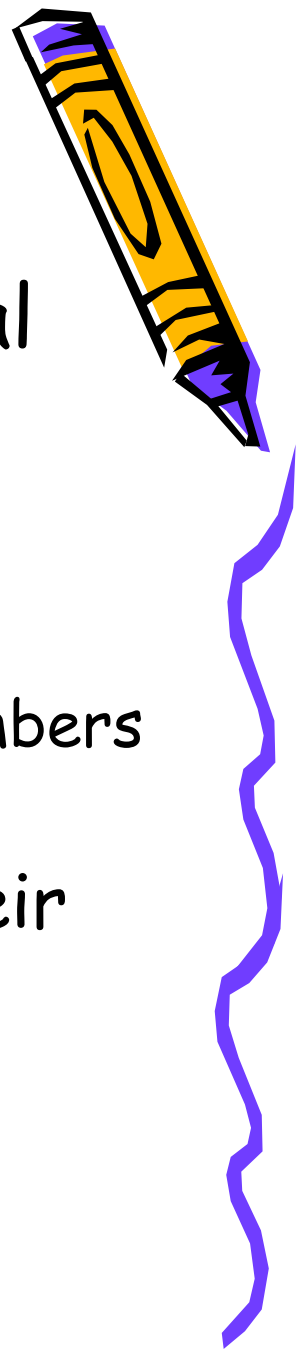


- What is it?
- Mathematical discourse is a classroom culture where students make conjectures, talk, question, and agree or disagree about problems in order to discover important mathematical concepts.



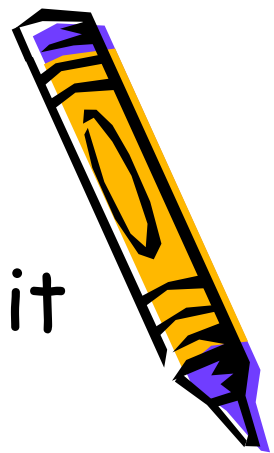
Mathematical Discourse

- Bridges supports mathematical discourse by:
 - Asking open ended questions
 - Traditional problem: Add $15 + 5$
 - Open ended problem: Give two numbers whose sum is 20.
 - Asking students to "Justify Their Thinking"

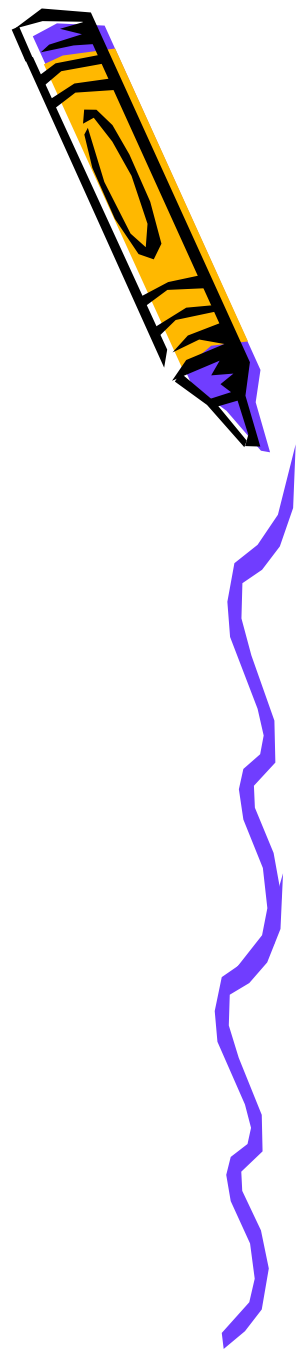


Spiraling Concepts

- Students don't always master it the first time
- Learning is based on attaching new knowledge to previously learned concepts
- Transfer knowledge of a concept to new situations
- Repetition of concepts helps to solidify knowledge



How You Can Help at Home

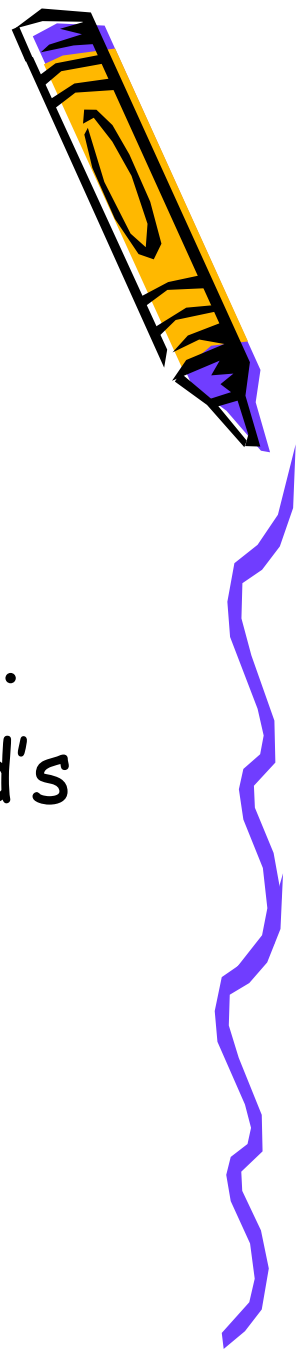


- Question Stems
- Ask for Demonstrations
- Website
 - www.mathlearningcenter.org
- Play Games



Question Card

- Fill out the question card with any questions that you would like answered after the Bridges lesson.
- Turn it in on your way to your child's grade level classroom.



Bridges Lessons

- Kindergarten- Room 103
- First Grade- Room 114
- Second Grade- Room 1
- Third Grade- Room 6
- Fourth Grade- Room 12
- Fifth Grade- Room 10

